



Patton Electronics Company, Inc.

7622 Rickenbacker Drive

Gaithersburg, MD 20879 USA

Tel. +1 (301) 975-1000

Fax +1 (301) 869-9293

support@patton.com

<http://www.patton.com>

Customer Deliverable Documentation
Revision 1.00, February 12, 2013

SmartWare R6.T Release Notes

Build Series 2013-01-15

SmartWare is the embedded application software of the SmartNode™ series of VoIP Gateways and Gateway Routers. SmartWare provides a full set of IP routing features, advanced Quality of Service and traffic management features plus industry leading Voice over IP functionality including SIP and H.323

Released Build Numbers

SmartNode 4110 Series R6.T Build 2013-01-15
SmartNode 4120 Series R6.T Build 2013-01-15
SmartNode 4300 Series R6.T Build 2013-01-15
SmartNode 4400 Series R6.T Build 2013-01-15
SmartNode 4520 Series R6.T Build 2013-01-15
SmartNode 4600 Series R6.T Build 2013-01-15
SmartNode 4600 Series R6.T DSL Build 2013-01-15
SmartNode 4660 Series R6.T Build 2013-01-15
SmartNode 4670 Series R6.T Build 2013-01-15
SmartNode 4830 Series R6.T Build 2013-01-15
SmartNode 4830 Series R6.T DSL Build 2013-01-15
SmartNode 4900 Series R6.T Build 2013-01-15
SmartNode 4940 Series R6.T Build 2013-01-15
SmartNode 4950 Series R6.T Build 2013-01-15
SmartNode 4960 Series R6.T Build 2013-01-15
SmartNode 4970 Series R6.T Build 2013-01-15
SmartNode 4980 Series R6.T Build 2013-01-15
SmartNode 4990 Series R6.T Build 2013-01-15
SmartNode 5200 Series R6.T Build 2013-01-15
SmartNode 5400 Series R6.T Build 2013-01-15
SmartNode 5480 Series R6.T Build 2013-01-15
SmartNode 5490 Series R6.T Build 2013-01-15
SmartNode DTA Series R6.T Build 2013-01-15

About this Release

R6.T is a SmartWare Technology Release. Please see the White Paper about SmartWare software releases <http://www.patton.com/solutions/SmartWare%20Release%20Strategy%20White%20Paper.pdf> for more information about this terminology.

Supported Products

SmartNode 4110 Series (HW Version: 1.x, 2.x, 4.x)
SmartNode 4120 Series (HW Version: 1.x, 2.x)
SmartNode 4300 JS Series (HW Version: 2.x)
SmartNode 4300 JO Series (HW Version: 1.x)
SmartNode 4400 JS Series (HW Version: 2.x)
SmartNode 4400 JO Series (HW Version: 1.x)
SmartNode 4520 Series (HW Version: 1.x, 2.x, 4.x)
SmartNode 4600 Series (HW Version: 1.x)
SmartNode 4600 Large Series (HW Version: 1.x, 2.x)
SmartNode 4660, 4670 Series (HW Version: 2.x, 3.x, 4.x)
SmartNode 4830 Series (HW Version: 1.x, 2.x, 4.x)
SmartNode 4830 Large Series (HW Version: 1.x, 2.x)
SmartNode 4900 JS Series (HW Version: 1.x, 2.x)
SmartNode 4900 JO Series (HW Version: 1.x)
SmartNode 4940 Series (HW Version: 5.x)
SmartNode 4950 Series (HW Version: 5.x)
SmartNode 4960 Series (HW Version: 1.x, 2.x, 3.x, 4.x, 5.x)
SmartNode 4970, 4980, 4990 Series (HW Version: 1.x)
SmartNode 5200 Series (HW Version: 6.x)
SmartNode 5400 Series (HW Version: 5.x)
SmartNode 5480, 5490 Series (HW Version: 1.x)
SmartNode DTA Series (HW Version: 1.x, 2.x)

History of Solved CTS Cases

The following list refers to open cases in the Change Tracking System 'CTS'.

This Build Series 2013-01-15

11214 Ethernet speed capability for manual settings

Defining the speed and duplex on Ethernet ports resulted in using auto negotiation with restricted capabilities. It is now possible to define the speed and duplex settings manually without having auto negotiation enabled. See full details in the *New configuration commands* section.

11944 Action script trigger for SIP registration

It is now possible to execute user defined CLI commands in case of a SIP gateway registered/unregistered event. Refer to the section *New Configuration Commands* for a detailed description.

11984 G.SHDSL interface software upgrade failed

The software upgrade failures of the G.S interface have been fixed. The problem was that the DSL supervisor tried to access the card during upgrade in order to check the interface status but did not get a proper response. Consequently the supervisor considered the card is not responding and immediately triggered a hard reset. Now the supervisor is temporarily turned off while an upgrade is running.

12079 RTP payload type conflict

SmartWare internals specified that the RTP payload type 96 was reserved for DTMF relay according to RFC2833. This lead to conflicts when another codec was configured to use payload type 96, even when DTMF relay is disabled. The internal RTP payload type for DTMF relay is now changed to 127 to reduce the probability of conflicting configurations.

12115 G.SHDSL mode auto detection fixed

Mode auto detection for the G.SHDSL interface only worked for the first connection attempt when connected to Huawei DSLAM. This has been corrected such that any mode switches on the DSLAM will be correctly detected on the SmartNode's interface.

12120 Support for short delay re-INVITE in SBC scenario

The SIP state machine has been enhanced to support an SDP renegotiation happening very quickly in an SBC scenario. When receiving a new offer (re-INVITE) before the call status switches to the connected state on the calling side, the SIP state machine got into an error state.

12125 SN4991 Models with ADSL interface supported

Software support for the ADSL interface is introduced for SN4991 Models. The configuration of these is equal to the existing models with ADSL interfaces.

12128 RTP through VPN broken

Affected platforms: SN4660/70, SN4940/50/60, SN4970/80/90, SN5480/90

The '[no] rtp-encryption' command in the 'ip interface' configuration mode is used to give the system the ability to send locally generated RTP traffic through VPN. On the above listed platforms that command caused a one-way voice connection where the outgoing stream was suppressed.

12130 Wrong drop cause reported by SIP endpoints, resulting in failed call hunting

SmartWare build R6.T 2012-12-03 introduced an incorrect processing of the drop cause from SIP endpoint. Whenever a SIP call was dropped it reported "normal call clearing" no matter what the real cause was. Among others this resulted call failures when using a hunt group.

12131 Spelling error corrected on BGP configuration web page

It now says "Border" instead of "Boader"

12135 SN4660/70 cooling fan speed adjusted

The speed of the cooling fan on SN4660/70 models has reduced for lower temperatures.

Build Series 2012-12-03

11863 SIP supports TCP flows according to RFC5626

SmartWare supports now the 'User Agent Procedures' from RFC5626 with the exception of 'Keep-Alive with STUN'. Registrations can now open a TCP flow to the registrar and keep it open through CRLF keep-alive or other messages. Through that flow calls can traverse through NAT and reach the registered user. See full details in the *New configuration commands* section.

11906 SNMP OID for DSL card firmware version

It is now possible to get the installed firmware version of any DSL daughter cards (ADSL or G.SHDSL) via SNMP *get* or *walk* requests. Please check the latest MIB file on our official website for the correct OID.

11916 Support for SN4832/LLA and SN4834/LLA models

Software support for the two new SmartNode models SN4832/LLA and SN4834/LLA has been introduced. These products can be used in pairs as leased line extensions over ADSL with up to 4 channels.

11943 New NTP server in factory-config

The factory-config of all models has been updated to use the NTP server pool.ntp.org.

11958 SIP AOC XML support

It is now possible to send and receive SIP Advice Of Charge information in XML format. Refer to the section *New Configuration Commands* for a detailed description.

11959 Sending tax-pulses on FXS for AOC

It is now possible to forward received AOC information from ISDN or SIP toward analogue FXS lines. The AOC information is converted from units or currency to a number of tax pulses which are sent out. See details in the *New configuration commands* section.

12039 Incorrect answer to SIP INFO message

When SmartWare received an INFO request belonging to a call which was already terminated an incorrect answer was sent. This has been corrected now and instead of the wrong '405 Method Not Allowed' SmartWare rejects the request with '481 Call Leg/Transaction Does Not Exist'.

12062 G.SHDSL software upgrade progress indication updated

G.SHDSL software upgrade can sometimes last up to 10 minutes. The upgrade progress indication has been updated with this information as follow:

DO NOT UNPLUG THE DEVICE!
Subsystem is being upgraded, please be patient this may take up to 10 MINUTES!

12074 Increased timeout for redirection service

The provisioning request to the redirection service is sent out after a certain timeout after booting. This timeout has been increased from 1 to 2 minutes.

At the same time the factory-config for most models has been updated to include support for the redirection service.

12082 183 Session Progress not being forwarded in SBC scenarios

It has been noticed that provisional responses were not being properly forwarded in specific SBC scenarios. It is now possible to solve this issue by disabling the early-proceeding parameter in the corresponding SIP interface. A new command has been added in order to change this parameter (see *New Configuration Command* section).

12083 Minimal SIP registration time

In case of registration the minimal registration time was not considered. This parameter is now handled properly.

12086 Added support for SFP interface (Fiber interface)

The SFP (Fiber) interface present on some SmartNodes is supported with this build. It is represented with the new **port ethernet 1 0** mode and supports the following SFP modules:

- Gigabit Ethernet single/multi-mode Fiber and Copper modules
- Fast Ethernet single/multi-mode fiber modules

SFP modules are automatically detected and configured following the INF-8074i specification for SFP transceiver. If the SFP module does not follow the INF-8074i specification, it must be manually configured. See details in the *New configuration commands* section.

12093 SIP calls over TCP failed

Under certain circumstances SmartWare sent INVITE requests over TCP to a wrong IP address. This happened for example when the DNS SRV record lookup for the request URI provided different entries for the UDP protocol than for the TCP protocol and when at the same time the preferred transport protocol was configured to TCP. The first IP address from the UDP record was taken as destination for the INVITE request, but the request was sent over the TCP transport protocol. This has been fixed in a way that for the described scenario the first IP address from the TCP record is taken as destination and the request is sent over TCP to that IP address.

12097 DSL supervisor log notifies wrong DSL line state

If the DSL supervisor is enabled (with the command **[node](port-dsl)[0/0]# supervisor [always | observe]**) and the modem is not answering for 1 minute, then the supervisor will notify a DSL link down followed by a DSL link up event instead of notifying that the modem is busy. This has been fixed in this release build.

12111 Missing user part from SIP contact header

Since the inclusion of the updated SIP support in 2012-09-17 build series the user part in SIP contact headers has been missing in SIP requests. This has been corrected and the user part is included again.

Build Series 2012-09-17

11717 Invalid REGISTER request when spoofed contact is set

When a spoofed contact is set, SmartWare sends the first REGISTER request with a wrong contact address and over a wrong transport protocol. This has been fixed now.

11846 SIP multipart message support

SmartWare is now able to handle multipart SIP messages. Currently only the Content-Type "multipart/mixed" is supported. Note that SmartWare is only able to receive multipart messages and will not send multipart SIP messages. If for some reason more than one body part of type "application/sdp" is received by the SmartNode it will use only the first SDP body and ignore any subsequent bodies.

11854 Support for 4300/JO and 4400/JO products

Added support for the following products:

- SN4312/JO
- SN4316/JO
- SN4324/JO
- SN4332/JO
- SN4412/JO
- SN4416/JO
- SN4424/JO
- SN4432/JO

11859 Media detection timeout

Even if it was possible to set the media detection timeout this value was not applied correctly on Apollo devices. Now this value is applied correctly and media detection will be turned off after this timeout.

11912 Enhanced AAA debug logs

Some user related information is now displayed in a blurred manner.

11999 New Patton corporate style applied to web interface

New Patton look and feel has been applied to the SmartWare web interface. This transition is one way and the old look and feel is not reachable anymore. Custom web interfaces can be ordered with an OEM build.

12014 Wrong help text for blink command

A wrong help text was shown for the *blink* command. Now the help text has been changed in order to show the proper explanation.

12036 Limit packets to prevent SIP overload condition

It is possible to limit the maximum amount of incoming SIP packets which are stored to be handled and processed later on. This guarantees a responsive system even in an overload condition. It handles and parses still as much requests as possible but the excess is simply discarded. See more in section new commands.

12040 SIP *register back-to-back* command removed

The *register back-to-back* command has been removed from the *registration outbound* face in the location service since it did not have any effect.

12043 Added option DHCP.66 error message when not available

Provisioning location now returns an error when option DHCP.66 is used but not available.

12045 Concurrent Dynamic IP Configuration (DIC) removes default gateway

DIC protocols addressed in this ticket: DHCP, PPP

A problem related to concurrent *DIC* client has been fixed.

If a SmartNode was configured for being *DIC* client on several IP interfaces it could happen that the default route applied through one interface got spuriously removed. It is still true that the SmartNode is only able to handle one default route received through a *DIC* protocol. However, now a default route can only be removed by the IP interface which has previously applied it.

Consider the following rules:

- Last applied route wins, overwriting is allowed.
If a valid default route is already applied through a *DIC* protocol and the SmartNode receives a new valid route, then the existing route will be replaced.
- Removing only possible through 'owner' interface.
If a default route has been applied through one interface and was overwritten by a second different interface, it can then only be removed again by the second interface (owner). If for example a 'link down' occurs on interface one, this has no impact on the default route because it has been applied by interface two.

12055 Flash hook on FXO interface broken

The flash hook behavior was broken on FXO interfaces. In fact the interface would hang in the flash hook state and ignore any subsequent events on that interface. This has been corrected.

Build Series 2012-07-18**11497 Configuration option for caller-ID checksum verification on FXO interface**

A new configuration option on the interface FXO lets the user configure if the checksum of the caller-ID should be verified or ignored. Depending on the configuration and the presence of a valid checksum the caller-ID information is forwarded or discarded. See details in the *New configuration commands* section.

11728 G.SHDSL interface: service-mode auto-detection

Now it is possible to configure the SmartNode to detect the G.SHDSL line mode automatically. It is able to detect whether it is connected to a 2-wire or a 4-wire line. Note that this feature only works if G14 release or later is installed to the G.S interface. Refer to the section *New Configuration Commands* for a detailed description.

11811 ISDN status errors on Web UI

All the ISDN capable network ports (BRI, E1T1) showed a DISPLAY_CMD error on their status page on the Web UI. This problem has been fixed and the related ISDN information is appearing again.

11835 MWI on FXS not working

On 6.T releases the Message-Waiting-Indication on FXS ports was not working anymore. This has been fixed.

11860 SIP re-register not working

The SIP header “received” and “rport” parameters were handled incorrectly in an incoming SIP packet. This behavior caused the SIP stack to keep the old registration. Now these parameters are handled correctly and a proper re-register will be initiated in this scenario.

11879 ADSL annex A/B/M

This software build supports the new SmartNode models with the new ADSL interface. In addition it is now possible to setup an ADSL connection in an easier and more flexible way. The connection can be configured both with annex A/B and M. PVCs with PPPoEoA, IPoEoA, PPPoA and IPoA are concurrently supported together with LLC and VC encapsulation. Refer to the section *New Configuration Commands* for a detailed description.

11888 Improved dial ‘on-caller-id’ on FXO

The ‘ring-number’ command in the FXO interface has an option ‘on-caller-id’, which is meant to establish the call as soon as a caller-ID was received. This worked only when the caller-ID was sent mid-ring. When the caller-ID was sent pre-ring the call was established after the second ring-burst. This has been changed now in such a way that when the caller-ID was received pre-ring the call is established after the first ring-burst.

11908 Layer 2 COS for PPP and PPPoE control packets

Layer 2 COS is now set to 7 for PPP and PPPoE control frames, when these packets are encapsulated in IEEE 802.1Q tagged frames. If needed, the user can configure this layer 2 COS to another value (from 0 up to 7) using a new command in the PPPoE session.

This new feature allows traffic prioritization of PPP/PPPoE packets and adds a way to provide best effort QoS or CoS at layer 2.

Refer to the *New configuration commands* section for further details.

11935 Administrator login to administrator exec mode

A new configuration command allows users with administrator privileges to be logged directly into the administrator exec mode which is otherwise entered with the command “enable”. Refer to the *New configuration commands* section for further details.

11937 MWI Subscription failing

Caused by a software bug the contact address in SIP Subscription messages was containing an unnecessary trailing comma character. This has been fixed in the current software release.

11940 H.323 Call Resuming

H.323 offers the capability to suspend a call by sending an empty Terminal Capability Set (TCS) and to resume it again by sending a valid TCS. On the SmartNode the resuming procedure was broken, it didn't respond with its own TCS on receiving the peer's 'Resume TCS'.

Now the capability exchange as well as the Master Slave Determination is executed and the feature works as expected.

11955 Dial tone played a second time

On SN4630 and SN4650 devices the dial tone was played a second time. This happened when an ISDN phone was connected to the SmartNode and the digit collection was done with a routing table in SmartWare. When the user picks up the phone the dial tone was played the first time to indicate that a number can be dialed. The tone stopped playing after the first dialed digit. But after completion of the number the dial tone was played again. This has been corrected and the dial tone is played only the first time.

11981 G.S line rate negotiation fails at high distance

G.S line rate negotiation between the SmartNode and the CO may fail at high distance under some circumstances. This can be fixed by enabling the power backoff on the G.S interface. A new command has been implemented to configure the power backoff on the G.S interface. By default this value is set to 0dB (i.e. no power backoff) but it can be reduced down to -12dB depending on the distance and the CO type. This feature requires at least version G13 of the G.S card interface.

Refer to the *New configuration commands* section for further details.

11989 FXO dial-tone detection

On the SN4660/70 platforms the 'interface fxo' command 'dial-after dial-tone' didn't have any effect due to missing dial-tone detection. It could be worked around by configuring 'dial-after timeout' or by enabling any other call-progress tone detection feature like 'disconnect-signal busy-tone'.

12019 Invalid SDP offer in SIP provisional response

If the SmartNode receives an SIP INVITE without SDP information, forwards the call to an ISDN interface and later receives an ALERTING message with inband info from the ISDN peer, it would then create an SDP offer in the 180 RINGING provisional response. This works but goes against the SIP standard. Such a scenario later failed in the call setup process when the SmartNode finally realized that this was going against the standard's definition. This has now been corrected and SmartWare does no longer create any SDP offer in a provisional response in such a scenario.

Build Series 2012-05-23

10983 DTMF caller ID transmission on FXS

The SmartNode analog devices now support DTMF caller ID transmission on FXS ports. DTMF CID protocol can be fully configured using a profile which can be loaded with one of the following predefined standards:

- ETSI (ETSI 300 659-1 Annex C)
- Denmark (TDK-TS 900 216)
- India (NO.SR/ASF-01/03)
- Brazil (Anatel 220-250-713)

Refer to the *New configuration commands* section to find out how to configure this feature.

11716 Crash when a '#' character is present in SIP contact header

According to RFC 2396 the '#' is not allowed in SIP URI. SmartWare did crash if such a character is present in the URI of the contact header. This scenario is now handled correctly and the crash does not occur anymore.

11785 Support for p-called-party-id header

This is a new feature added to SmartWare. It is now possible to configure a SIP interface to extract the *called-e164*, *called-uri* and *called-name* parameters from the “*p-called-party-id*” header (optional, see RFC 3455) in the incoming SIP INVITE. For more details on the changes made to relevant commands, please refer to the ‘*New Configuration Commands*’ section.

11872 Incoming SIP calls refused with 481 after an IP address change over PPP

This problem occurred when the SmartNode gets a new IP address from the PPP server. In this case the SmartNode would send an UNREGISTER packet with the old IP. This created a corrupted state where later on received packets still have the old IP address. As a consequence these packets are refused with a 481 error message. The solution is to drop all outgoing packets where the IP address is not valid anymore. I.e. the UNREGISTER is not sent anymore in this scenario.

11882 Cooling fan always running at full speed on SN4670

The issue is observed during boot-up of an SN4670 device such that the cooling fans would run at very high speed and then would stop for few minutes and would speed-up again causing undue noise. The issue is now fixed and the fans on SN4660 devices now run more quietly during boot-up and normal device operation while still fulfilling their cooling task.

11889 No final answer when receiving BYE

SmartWare behaves incorrectly in the following SIP scenario. SmartWare receives an incoming INVITE request on a SIP interface. The call is forwarded through call-control and reaches the state of an early dialog at some point by sending a provisional answer “180 alerting” or “183 proceeding”. Now the originator of the INVITE request terminates the call by sending a BYE request within this early dialog. SmartWare sends back a “200 OK” to the BYE request, but

does not send any final answer to the INVITE request. This is now corrected and SmartWare sends in addition to the “200 OK” to the BYE also a “487 Request Terminated” answer in response to the original INVITE request.

11891 SN4660/SN4670 Rev C and Rev D support

The new SmartWare build has now integrated support for the latest revisions of the SN4660/SN4670 products.

11895 Ethernet switch problem on SN4660/SN4670

Two problems related to the Ethernet switch chip on SmartNodes 4660/4670 were fixed. The bootloader was crashing when two network cables were connected. When Ethernet 0 and 1 were both connected to the same switch the IP routing would fail because the software did not maintain separate MAC address tables for each port.

11898 Enhancement of software upgrade procedure

The software upgrade procedure in SmartWare is enhanced to support software deliveries packed as tar files and the ability to upgrade in the future to a different Operating System.

11899 SIP Hold/Unhold behavior

When the SmartNode is set on hold with the SDP a=inactive during a SIP call, the SmartNode's responding SDP would always be a=recvonly. The behavior was adjusted so that SmartNode responds to a=inactive with a=inactive and to a=sendonly with a=recvonly. This behavior change is needed to be compliant with Microsoft LYNC servers among others.

11902 SIP q-value of 1.0

The Q-value feature did not allow sending a maximal value of 1.0. Now it is possible to send all values between 0.0 and 1.0.

11929 SN-DTA clock synchronization

On the SN-DTA device a problem related to ISDN clock synchronization has been fixed. It occurred if an external TE device was configured to get its reference clock from the SN-DTA's NT port. Especially if the connected device was a PBX which itself served FAX machines, the problem resulted in failing FAX transmissions.

11932 SIP 503 error handling

SmartWare was not correctly hunting for SIP peers if a DNS lookup returned multiple A records. In case the SmartWare SIP gateway receives a list of possible IP addresses it should try to connect to the first IP address in that list. If this does not work due to a network problem or if the peer SIP side sends a 503 Service Unavailable, the SmartWare should try the next IP in the list. Now in one very specific case SmartWare received a 100 Trying between the initial INVITE and the 503 and was therefore not further trying to connect to the next IP address. This behavior has been changed to allow proper SIP destination hunting.

11936 Broken T.38 transmission

The problem manifests itself through continuous 'voice' detection at the beginning of the FAX transmission. It appeared if the SmartNode was located on the calling side of the call (A-Side) and affected all BRI, FXS, and FXO devices except SN4660/SN4670. All issues have been fixed and T.38 FAX transmission is working again for the above listed device series.

11942 Redirection service for provisioning supported in factory configuration

The product families of SN4660/SN4670 and SN4970/SN4980/SN4990 now support the Patton redirection service for provisioning of customer specific configuration when booting up with the factory configuration.

11950 Modified memory layout for SDTA, SN4552, SN4554 and SN5200

During the boot process the memory is a limited resource. Therefore the memory layout of the products SDTA, SN4552, SN4554 and SN5200 has been slightly adapted to make better use of the memory.

11954 FXS hanging calls

If an 'interface fxs' in 'context cs' was configured for 'signal disconnect' by loop-break, the call has never been completely terminated. Consequently, on an interface configured for loop-break it was not possible anymore to setup further calls after dropping the first connection.

11957 Basic PRACK scenario broken

SmartWare behaves incorrectly in the following PRACK scenario. SmartWare receives an incoming INVITE request on a SIP interface. This request states that the remote device supports PRACK. It also contains a body with SDP description. SmartWare sends a provisional response with an SDP description too. In this response the acknowledgement with PRACK is requested. When the remote device now sends the PRACK request to acknowledge the provisional response, and this PRACK request does not contain a SDP description, SmartWare terminates the call with a "488 Not Acceptable Here". This misbehavior is now fixed and the call is continued after receiving the PRACK request.

11965 Spurious error messages from G.S interface

If a PPPoE PVC is created with a serial connection then an error message appears. This error message is not harmful because all commands are successfully executed. The reason is that a feature is turned off which it already is by default. This spurious error message has now been removed.

11968 Missing command 'payload-rate' on SN4660/SN4670

The command 'payload-rate' in the 'port dsl' mode was missing on SN4660/SN4670 devices when using tab completion. It was successfully executed when typed manually though. The command is now fully supported also on SN4660/SN4670.

11983 Verbose software upgrade of G.S interface card

The software upgrade procedure for the G.S interface card has been improved and now gives a complete error description in case of a failure at any point during the procedure.

11987 Removed support for hardware version 4.x for SN4552, SN4562, SN4554, S-DTA

Due to limited memory resources this software build cannot be downloaded anymore to SN4552, SN4562, SN4554 and S-DTA devices with hardware version 4.x or lower.

Build Series 2012-03-15

11560 Web interface generates a new identity

An issue arises on the SmartWare web interface when a user clicks the hyperlink of a newly created identity containing special characters like '+' etc. This causes creation of a duplicate identity with a name identical to the originally created identity but with its special character (here '+') replaced by a space character. This issue is now fixed and identity names on SmartWare web pages may now contain such special characters (+, # etc.).

11638 PPPoA on G.S interface

It is now possible to configure the PPPoA protocol on SmartNodes with a G.S interface. This feature requires the software version G.12 to be loaded on the G.S interface. Refer to the section *New Configuration Commands* for a detailed description.

11722 SN-Web page refresh causing reboot

In case of a web page reboot the process got stuck at the page "reboot-prog.html". This page is responsible for executing the "reload forced" SmartNode command. If somebody tries to reload this page in the browser (e.g. with the F5 button) the reboot will happen over and over again. Now after executing the restart command the browser will immediately go to the home page where reloading the page will not result in a reboot anymore.

11766 Enhance DSL status display

When the "show dsl status" command was executed on a SmartNode with a G.S interface, then the parameter name "Cell Delineation" was misleading. It has now been renamed to "Loss Of Cell Delineation". Additionally in 4-wire mode the state of the second port was not displayed even if it holds valuable information. The original "Port State" parameter has been renamed to "Port State 1" and the new second port state has been introduced as "Port State 2".

11773 DTMF Caller-ID reception on FXO

The SmartNode analog devices now support DTMF caller IDs on FXO ports. The following standards are supported:

- ETSI (ETSI 300 659-1 Annex C)
- Denmark (TDK-TS 900 216)
- India (NO.SR/ASF-01/03)

- Brazil (Anatel 220-250-713)

Refer to the *New configuration commands* section to find out how to configure this feature.

11778 Call transfer issue fixed

SmartWare did not push back SIP calls to the network when the call was coming from SIP and going to an analog port. This undesired behavior has been altered and calls are now properly pushed back to the network to save resources on the SmartNode.

11780 CED-Tone Net Side Detection enhancement

The command *ced net-side-detection* has been enhanced to make the behavior in case of CED-Tone detection configurable. CED-Tone detection is only active when the SmartNode is the calling party.

When the CED-Tone net side detection is enabled the user can choose between one of the 3 behaviors described below:

- (default) — Switch from audio mode to voice-band-data mode without executing a re-invitation of the session.
- re-negotiation — Issue a re-invite for T.38. This behavior is only valid when fax preferred codec is T.38.
- fallback — Switch to bypass (a bypass coder must be configured). If the bypass coder is different from the audio coder then a re-invite is sent. This behavior is only valid when fax preferred codec is T.38.

Refer to the *New Configuration Commands* section for a detailed description of the *ced net-side-detection* configuration.

11802 Trusted SIP hosts to improve security

SmartWare now has a new SIP feature called “Trusted SIP hosts” where users can define a list of trusted IP addresses or FQDNs that they want to allow to connect to a specific SIP interface. If a SIP interface has at least one trusted host configured no other remote peers than the ones in this list will be allowed to connect to the SmartNode. Refer to the *New configuration commands* section to find out how to configure this feature.

11803 HTTP download failure blocks the SmartNode

Whenever an HTTP download job fails on a SmartNode, it causes the SmartNode to halt or block. In order to get the SmartNode up and running again, it must be restarted. The problem is fixed and from now on any unsuccessful HTTP jobs on SmartNodes will terminate in a graceful manner.

11804 T.38 Fax transmission killed by CNG tone

In this specific scenario a Fax transmission is detected based on the CED tone. The configured T.38 fax relay protocol is negotiated and established between both SIP peers. Now SmartWare received a T.38 CNG packet from the peer and killed its own T.38 transmission by misbehavior. This misbehavior is now fixed and the T.38 CNG packet does not kill the Fax transmission anymore.

11810 Auto-provisioning: redirection target reordering

When an auto-provisioning request to a location URI results in a redirection to another URI, the SmartNode instead of trying the redirected URI tries the next location in the list. This was an incorrect behavior and has now been fixed. From now on, the SmartNode will immediately try the redirected URL first and only when this redirection fails will it continue with the next location in its list of auto-provisioning locations.

11814 Missing strict-tei-procedure command

On the SN4660/70 device series the '[no] strict-tei-procedure' command was missing in ISDN's q921 configuration mode. This command is now available.

11817 Provisioning: prevent downloading incompatible configuration

When a configuration file is downloaded from a provisioning server, the CLI major version of this file is checked before applying the configuration. This is in order to prevent applying an incompatible configuration. If no CLI version is present in the config file then it is considered valid (to ensure no changes in current provisioning behavior).

SmartWare supports CLI version lower than 4 (current version is 3.20).

CLI version has the following syntax in configuration file:

cli version <major-version>.<minor-version>

11819 New provisioning placeholders

New placeholders have been added to the *location* command of a provisioning profile. This allows for more flexible structures on the provisioning server. Please refer to the *New Configuration Commands* section for further details about using these new placeholders.

11818 Auto-provisioning factory-config (Redirection service support)

The factory configuration file for the SmartNodes *SN-DTA*, *SN4120* and *SN4110* is updated to provide support for Auto-provisioning redirection and for using locations containing placeholders of dhcp option 66, 67

11832 Wrong G.S port state displayed

When the "show dsl all" command was executed on a SmartNode with a G.S interface the "State" parameter always showed the wrong value. This came actually from "PeerPortState". Now the proper value is shown.

11842 SN5200 hardware-version 6.X support

For the SN5200 device, hardware-version 6.X support has been added.

11844 CED-Tone Net Side Detection not working

The command *ced net-side-detection* had no effect. This has been fixed and the command has been enhanced as described for **11780** above.

The command *modem detection on-remote-fax-request* was not working correctly. This has been fixed.

Only the 2012-01-26 build series are affected by these two problems (earlier build series are working).

11848 Crash when downloading G.S firmware with web interface

SmartNode crashed when a new G.S firmware was applied using web interface. This failure has been fixed.

11850 Abnormal call termination due to misinterpreted SDP data

The SIP state machine in SmartWare had been modified to be stricter concerning the presence of SDP in the following scenario:

- The SmartNode acts as a SIP UA client and send an INVITE
- An 1xx provisional response containing SDP is received (which allows for early media to be set up)
- Any consecutive 1xx provisional response is then expected to contain SDP as well. If it does not, the SDP offer/answer state machine is reset. This behavior results in an abnormal call termination.

This behavior has been corrected and SmartWare does not expect any 1xx provisional response to contain SDP anymore.

11852 Auto-provisioning: Target configuration without leading http or tftp

Until now it was mandatory to provide a 'http://' or 'tftp://' prefix while configuring an auto-provisioning location. In cases where a location contains a placeholder for the dhcp 66 option, these location configuring methods lead to following limitation: the dhcp option must not contain protocol prefixes as otherwise replacement of this dhcp placeholder within a location may cause protocol prefix repetition, thereby resulting in errors.

To overcome this problem, the auto-provisioning location feature has now been enhanced. It now supports two new ways specifically meant for entering locations starting with the placeholder for the dhcp 66 option and do not require any protocol prefixes.

For more details on how to configure auto-provisioning locations, please refer to the *New Configuration Commands* section.

11855 Ethernet lockout on SN4660/70

On the SN4660 device series it could happen that the ethernet protocol enters a lockout state. In this situation no ethernet communication was possible anymore. The problem occurred if either the LAN or the WAN port was connected to a hub that was shared with several other devices.

Build Series 2012-01-26**11256 Echo Cancellation with RBS****11409 ETSI Caller-ID not detected on FXO****11534 Q-value support for SIP REGISTER****11636 Music on Hold not played to SIP side****11650 Removed DSL options 'b-anfp' and 'a-b-anfp'****11664 Support for SN4660/SN4670 hardware Revision B****11696 Broken modem transmission using H.323****11708 Removed SIP Contact header verification in 200 OK messages****11709 First received IPCP frame dropped in during PPP connection establishment****11755 Added SDP attributes 'X-fax' and 'X-modem' support****11776 Forced Fax/Modem bypass****11787 Remote Early-H.245 initialization****11791 Wrong mapping table in R2****11806 SN-DTA and SN4120 allow usage of g729 codec****Build Series 2011-11-18****11434 Fixed T.38 packets traffic-class****11632 BRI Daughter-Board****11637 HTTP User Agent enhancement****11641 G.SHDSL power and reset spikes****11655 Syslog-client "no remote ..." command crash****11674 Fixed display of mtu and mru max values in *running-config*****11675 Improved clocking precision for SN-DTA and SN4120**

- 11684** Timestamp enhancement for milliseconds
- 11685** Enhanced spoofed contact to accept hostname
- 11697** Fax T.38 not working with H.323
- 11698** Wrong facility callrerouting packet in case of CFU
- 11726** Missing facility from running-config
- 11727** New DSL supervisor mode “observe”

Build Series 2011-09-15

- 11133** Locking DNS records for SIP requests
- 11487** Improved configuration and display of bit rate for 4-wire G.S interface
- 11592** HTTP 302 Redirection now supported for provisioning
- 11594** Additional parameters in G.SHDSL status: SNR, Loop Attenuation, Port States
- 11604** Clock synchronization improvements
- 11615** Fixed “police” traffic class configuration option
- 11622** RTP payload type configuration
- 11639** Received maddr parameter is reflected in contact header
- 11649** Proper differentiation between SN4660 and SN4670 product types
- 11653** Spurious errors reported by SIP and SDP protocols
- 11654** BRI CRC Failures
- 11656** Potential memory leak in SIP state machine
- 11676** Support for SN-DTA and SN4120 series
- 11676** Global power-feed for BRI
- 11687** Performance improvements
- 11700** Wrong factory-config for SN products with DSL

Caveat - Known Limitations

The following list refers to open cases in the Change Tracking System 'CTS'

CTS2236

Only G.723 high rate (6.3kbps) supported by H.323 (receive and transmit).

CTS2702

TFTP may not work with certain TFTP servers, namely the ones that change the port number in the reply. When using the SolarWinds TFTP server on the CD-ROM this problem will not occur.

CTS2980

With 10bT Ethernet ports, only the half duplex mode works. (With 10/100bT Ethernet ports, all combinations work.)

CTS3233

The SolarWinds TFTP server version 2.2.0 (1999) does not correctly handle file sizes of $n * 512$ Bytes. Use version 3.0.9 (2000) or higher.

CTS3760

The SIP penalty-box feature does not work with TCP. When the penalty box feature is enabled, the TCP transport protocol must be disabled using the 'no transport tcp' command in the SIP gateway configuration mode.

CTS3924

Changing a call-progress tone has no effect. Adding a new call-progress tone and using it from the tone set profile works however.

CTS4031

The Caller-ID message length on FXS hardware with Chip Revision numbers below V1.5 is restricted to 32 bytes. If the message is longer the message will be truncated. The FXS Chip Revision can be displayed using the 'show port fxs detail 5' CLI command.

CTS4038

When doing 'shutdown' and then 'no shutdown' on an ethernet port that is bound to an IP interface that receives its IP address over DHCP, the IP interface does not renew the lease.

CTS4077

Using the command 'terminal monitor-filter' with regular expressions on systems under heavy load can cause a reboot.

CTS4335

The duration of an on-hook pulse declared as flash-hook has been raised from 20ms to 1000ms, to cover the most country specific flash hook durations. Existing installations should not be affected, as all on-hook pulses *lower than 1000ms* are declared as flash-hook, including the previous default of 20ms.

However, care should be taken in analog line extension applications, to make sure that the flash-hook event is allowed to be relayed over SIP or H.323. This can be achieved by disabling all local call features in the fxs interface on context cs: no call-waiting, no additional-call-offering, no call-hold.

CTS10392

The internal timer configuration command is only able to execute commands that produce an immediate result. Some commands that execute asynchronously cannot be executed by the timer. The following commands (among others) cannot be executed by the timer:

- **ping**
- **traceroute**
- **dns-lookup**
- **copy** any kind of files from or to a TFTP server
- **reload** without the **forced** option

CTS10553

The command “no debug all” does not fully disable the ISDN debug logs. As soon as any other ISDN debug monitor is enabled, all the ISDN monitors that were disabled by “no debug all” are re-enabled.

CTS10586

The codecs G.723 and G.729 cannot be used at the same time on all platforms, except on the SmartNode 4960.

CTS10610

SmartNode 4960 Gigabit Ethernet does not properly work with Dell 2708 Gigabit Ethernet Switch. A work-around is to configure 100Mbit.

CTS10730

Due to memory limitations it is not possible to download a software image to the SN4552 when two SIP gateways are active.

CTS11114

On SN46xx units it can happen that there are more open phone calls requiring a DSP channel than DSP channels are available. This leads to the situation where a phone connected on a bri port rings and has no voice after the user picks it up. To limit the number of calls using DSP channels it is suggested to create a limiter service where each call from and to a bri port has to pass. When the total number of calls on the bri ports is limited to the number of DSP channels each call is going to have audio on picking up.

CTS11214

SmartWare supports on Ethernet ports only the full functionality when the remote device does auto negotiation for link speed and duplex mode. Even when there is a setting configured auto negotiation is proceeded, but only with the configured capabilities. If connected switches do not auto negotiation there can be limited speed or even no link.

CTS11786

On older SmartNodes the two debug monitors *debug media-gateway rtp* and *debug call-control* print out incorrect RTCP jitter values.

CTS11816

The command 'call-control call drop <call>' is not behaving as expected. It drops all calls but does not completely teardown all internal structures. Consequently the call numbers of the dropped call cannot be used anymore for further calls after executing this command. The same is true for the "Drop all" button on the web interface on the "Active Calls" tab of the Call-Router section.

CTS12027

The following configuration may create duplicate packets: If one physical ethernet port is bound to two IP interfaces with different IP addresses and on both IP interfaces a SIP gateway is bound and some static routes are configured, then the SIP gateways may receive duplicate UDP packets.

General Notes

Factory Configuration and Default Startup Configuration

The SmartNodes as delivered from the factory contain both a **factory configuration** and a default **startup configuration**. While the factory configuration contains only basic IP connectivity settings, the default startup configuration includes settings for most SmartWare functions. Note that if you press and hold the system button (Reset) for 5 seconds the factory configuration is copied onto the startup configuration (overwrite). The default startup config is then lost.

IP Addresses in the Factory Configuration

The factory configuration contains the following IP interfaces and address configurations bound by the Ethernet ports 0/0 and 0/1.

```
interface eth0
    ipaddress dhcp
    mtu 1500

interface eth1
    ipaddress 192.168.1.1 255.255.255.0
    mtu 1500
```

New Configuration Commands

The commands documented in the Release Notes only cover new additions which are not yet included in the Software Configuration Guide for R6.3, available from www.patton.com .

<http://www.patton.com/manuals/SCG-r63.pdf>

Current Revision:

Part Number: 07MSWR63_SCG, Rev. A

Revised: January 25, 2013

Ethernet port manual mode for speed and duplex

First appeared in build series: 2013-01-15

Until now, it was only possible to force capabilities of an ethernet port by using auto negotiation with single capabilities. It is now possible to force the capabilities by using “true” manual mode. This new mode is only available for SN4660/70, SN4940/50/60/70, SN4600 and SN-DTA.

The following command can be used for the configuration:

Mode: port ethernet <slot> <port>

	Command	Purpose
Step 1	[node](prt-eth)[slot/port]# medium { auto negotiated { 10 100 (1000) } { half full } manual { 10 100 } { half full } }	Set the medium mode Default: auto

Note : Be aware that using manual mode to define the Ethernet port speed and duplex is not recommended as this might result in problems to detect cable or connectivity issues. It is generally more reliable to use the negotiated parameters.

Action script trigger for SIP registration

First appeared in build series: 2013-01-15

SmartWare supports action scripts which provide the possibility to execute user defined CLI commands when a specific event has occurred. Now two additional events have been added to the framework: REGISTERED and NOT_REGISTERED. The REGISTERED event occurs when the first identity belonging to the specified SIP gateway has registered. The NOT_REGISTERED event occurs when the last registered identity belonging to the specified SIP gateway has unregistered or the registration has become invalid.

Mode: rule

	Command	Purpose
Step 1	<code>[node](act)[RULE]# condition ip <routename:interfacename> { LINKUP LINKDOWN }</code>	Defines the condition under which the action has to be executed.
	<code>[node](act)[RULE]# condition sip <gateway:gatewayname> { REGISTERED NOT_REGISTERED }</code>	Defines the condition under which the action has to be executed.

SIP supports TCP flows according to RFC5626

First appeared in build series: 2012-12-03

SmartWare supports the 'User Agent Procedures' described in RFC5626 with the exception of 'Keep-Alive with STUN'. Registrations can now open a TCP flow to the registrar and keep it open through CRLF keep-alive or other messages. Through that flow calls can traverse through NAT and reach the registered user. Together with this addition some of the older nat-traversal and keep-alive capabilities were extended too. A summary is provided here of all nat-traversal commands for registrations and calls.

Registration nat-traversal disabled

When nothing is configured all nat-traversal procedures are disabled. With this command a configured nat-traversal mode can be removed and the normal registration behavior is restored.

Mode: registration outbound

	Command	Purpose
Step 1	<code>[node](regout)# no nat-traversal</code>	Disables nat-traversal procedures. Default: disabled.

Registration nat-traversal mode: minimal (new)

In nat-traversal mode minimal the goal is to register the globally accessible NAT address, but without having an additional keep-alive mechanism. This could be the case when the registrar server has such a mechanism, the NAT does not need such or the registration lifetime is short enough that the keep-alive is done with the REGISTER requests.

In this mode a REGISTER request is first sent with the local IP address as contact and the 'rport' option. If that request results in a successful answer the 'received' and 'rport' parameters are examined to detect the globally accessible IP address and port. With these correct parameters a second REGISTER request with the corrected contact header is then sent to the registrar.

Mode: registration outbound

	Command	Purpose
Step 1	<code>[node](regout)# nat-traversal minimal</code>	Activate nat-traversal without keep-alive.

Registration nat-traversal mode: nortel (no change)

This is the nat-traversal method to use together with certain Nortel devices. The discovery of the global IP address and port is done by sending a PING request and examining the answer to that. After that a REGISTER request with the global IP address in the contact header is sent for registration. Once registered the keep-alive is achieved with sending PING requests.

Mode: registration outbound

	Command	Purpose
Step 1	[node](regout)# nat-traversal nortel [keepalive-interval <seconds>]	Activate nat-traversal the Nortel way. Default keepalive-interval: 55 seconds.

Registration nat-traversal mode: keep-alive (enhanced)

Up until now this mode always used OPTIONS requests for achieving the keep-alive. In addition SmartWare supports PING requests for the same purpose. OPTIONS is still the default when not explicitly specified otherwise in the command.

This nat-traversal method executes the same procedure for registration as the minimal mode. After that either OPTIONS or PING requests are sent periodically for keeping the NAT open and detect changes.

Mode: registration outbound

	Command	Purpose
Step 1	[node](regout)# nat-traversal keep-alive [options ping] [keepalive-interval <seconds>]	Activate nat-traversal with OPTIONS or PING as keep-alive. Default keepalive- interval: 55 seconds.

Registration nat-traversal mode: flows (new)

When nat-traversal flows is selected then most of the 'User Agent Procedures' described in RFC5626 are executed for outbound registrations. Each sip gateway maintains its unique instance ID which is used on the registrar to distinguish between flows for different gateways or devices. For each registration the destination IP address is determined by the normal procedure. If a flow already exists for that destination, then the REGISTER request is sent through that flow. Otherwise a new flow to that destination is created before sending the request.

SmartWare currently does not support creating multiple flows for the same registered identity. Therefore the 'reg-id' parameter always is '1'. If a REGISTER request receives a successful answer SmartWare checks the 'received' and 'rport' parameters for correctness of the registered contact. If they do not

match, a new REGISTER request with corrected values is sent out. This can happen over the same flow as the previous one or over a newly created flow depending on the destination IP address resolution.

Once a correct contact is successfully registered, the configured keep-alive mechanism is started for the flow of that successful request. When a failure of a flow is detected through the keep-alive mechanism, all registrations associated with that flow are discarded and the registration procedure is started anew.

Flows created for requests which were not successful and which are not used by other active calls or registrations are terminated after 120 seconds of idle time.

Flows can be used for other outgoing requests, depending on the configuration. Incoming requests through flows are treated the same was as if they were received through the listening socket of the sip gateway. This ensures that the registrar server can forward calls through NAT to the registered user.

For flows the following keep-alive mechanisms can be configured:

- **no-keep-alive**: Register through flows, but do not start a keep-alive mechanism. This could be the case when the registrar server has such a mechanism, the NAT does not need such or the registration lifetime is short enough that the keep-alive is made with the REGISTER requests.
- **CRLF**: Start the CRLF keep-alive mechanism on **TCP flows** as described in FRC5626. For UDP flows no keep-alive is started with that configuration.
- **options**: Send OPTIONS request in periodic intervals over that flow to keep it active and detect failure or changes.
- **ping**: Send a PING request in periodic intervals over that flow to keep it active and detect failure or changes

Mode: registration outbound

	Command	Purpose
Step 1	[node](regout)# nat-traversal flows (no-keep-alive CRLF options ping) [keepalive-interval <seconds>]	Activate nat-traversal with flows. Default keepalive-interval: 55 seconds.

Calls using flows (new)

The concept of flows can be used for calls to. When flows are opened by registrations these are re-used for outgoing calls as well, but only if the target resolution procedures for calls are resulting in an IP address which a flow already exists for. Otherwise new flow is created for the duration of the call.

This does not affect incoming calls. Incoming calls are accepted through flows or outside of flows in the same way.

Mode: call outbound

	Command	Purpose
Step 1	[node](callout)# [no] nat-traversal flows	Configured if INVITE requests are sent out through flows.

SIP AOC (Advice of Charge)

First appeared in build series: 2012-12-03

With these commands the SmartNode can receive and send Advice Of Charge in ASN1/XML format. Please note that ASN1 format is only supported during a call.

Mode: interface sip

	Command	Purpose
Step 1	[node](if -sip)[IF_SIP]#[no] aoc-s { accept emit }	Enable/disable the SIP interface AOC accept/emit feature at the beginning of a call (default: disabled)
Step 2	[node](if -sip)[IF_SIP]#[no] aoc-d { accept emit }	Enable/disable the SIP interface AOC accept/emit feature during a call (default: disabled)
Step 3	[node](if -sip)[IF_SIP]#[no] aoc-e { accept emit }	Enable/disable the SIP interface AOC accept/emit feature at the end of a call (default: disabled)
Step 4	[node](if -sip)[IF_SIP]#[no] aoc-format { asn1 xml }	Sets the SIP interface AOC format (default: asn1)

Sending tax-pulses on FXS for AOC

First appeared in build series: 2012-12-03

Received AOC information can be forwarded from ISDN or SIP interfaces towards analogue FSX lines. The AOC information is converted from units or currency to a number of tax pulses which are sent out.

AOC-D information received during the call is converted into tax-pulses and these tax pulses are sent out. Subsequent AOC-D information is converted into tax-pulses as well, but only the number of tax-pulses is sent out which is above the total of already sent pulses.

For example: During a call three AOC-D messages are received: the first results in 2 tax pulses, the 2 tax pulses are sent out immediately. The second AOC-D message results in 4 tax pulses, then 2 tax pulses are sent out. Now the third AOC-D message results in 5 tax pulses then only one is sent out. The total of sent out tax pulses is now 5 which corresponds to the amount received with the last message.

Technically the same happens for AOC-E information which is received at the end of a call. But there are two major issues with this. If the user who connected the FXS port did terminate the call with a hang-up, then it is not possible anymore to send tax pulses to that user because the line is on-hook and nobody is listening. The second issue is when the tax pulses from the AOC-E are no higher than the total of already sent pulses from AOC-D messages, in which case no additional pulses have to be sent.

The conversion from AOC to tax pulses is rounded up to provide a higher charge to the user in case of doubts in a way that the amount on the bill never is any bigger than expected from the AOC information. This should prevent the user from bad surprises.

Conversion from units into tax-pulses

If the AOC information received from the SIP or ISDN peer contains units then the number of tax pulses is calculated as this:

Number of tax pulses = round up (Units received / configured units-per-pulse)

For example: Configuration: 'aoc emit-tax-pulses 12'. Units received: 50. Then the number of tax pulses = round up(50 / 12) = 5

Conversion from currency into tax-pulses

If the AOC information received from the SIP or ISDN peer contains currency then currency has to be converted first into units. This is because the currency information itself consists of an amount and a multiplier.

List of possible currency multipliers:

- one-thousandth
- one-hundredth
- one-tenth
- one
- ten
- hundred
- thousand

Units received = Amount received * currency-multiplier received / currency-multiplier configured

Number of tax pulses = rounded up (Units received / units-per-pulse configured).

In this sense the configured currency multiplier establishes a relation between the received currency and the units used for calculation of the tax pulses. To express for example that one tax pulse is worth 5 euro-cents the command would be: 'aoc emit-tax-pulses 5 one-hundredth'.

For example: Configuration: 'aoc emit-tax-pulses 5 one-thousandth'. Currency amount received: 2. Currency multiplier received: one-hundredth. Then units received = $2 * (1/100) / (1/1000) = 20$. Then tax pulses sent are = round up(20 / 5) = 4. The configuration specifies to send two tax pulses for each received euro-cent and therefore 4 tax pulses are sent because 2 euro-cents have been received.

Mode: interface fxs

	Command	Purpose
Step 1	[node](if-fxs)# [no] aoc emit-tax-pulses <units-per-pulse> [<currency-multiplier>]	Configures conversion and sending of AOC as tax-pulses. Default: disabled. Default currency-multiplier: one-hundredth.

Enable/disable early-proceeding on SIP interface

First appeared in build series: 2012-12-03

In SBC scenarios, it is possible that multiple provisional responses (1xx) are not correctly forwarded. This can be corrected by *disabling* the early-proceeding parameter on SIP interfaces. In case of PSTN gateway scenarios, it is preferable to leave the early-proceeding parameter set to *enabled* on SIP interfaces.

Mode: interface sip

	Command	Purpose
Step 1	[node](if-sip)# [no] early-proceeding	Automatically switches to proceeding state without receiving any provisional response (Default:enabled)

Set SFP mode

First appeared in build series: 2012-12-03

Some SmartNode models provide an SFP port which is compatible with Fiber SFP modules. This interface provides a new Ethernet port to the user. This port is configured in *port ethernet 1 0* mode.

This ethernet port supports the following SFP modules:

- Gigabit Ethernet single/multi-mode Fiber and Copper modules
- Fast Ethernet single/multi-mode fiber modules

SFP modules are automatically detected and configured following the INF-8074i specification for SFP transceivers. The command *show port ethernet 1 0* gives information about the port status and also about the SFP module which is plugged in.

If the SFP module does not follow the INF-8074i specification and can therefore not be properly configured, following command can be used for manual configuration:

Mode: port ethernet <slot> <port>

	Command	Purpose
Step 1	[node](prt-eth)[slot/port]# [no] sfp-mode { auto 1000Base-SX 100Base-FX }	Set the SFP port mode Default: auto

Mode 'auto' is the default and will automatically configure the SFP port with the correct mode when a SFP module is detected. This is the meaning of all options:

- auto => use auto-detection mode following INF-8074i specification (default)

- 1000Base-SX => configure for Gigabit Ethernet Fiber/Copper module
- 100Base-FX => configure for Fast Ethernet Fiber module

The medium is not configurable and always uses auto-negotiation.

Limit packets to prevent SIP overload condition

First appeared in build series: 2012-09-17

It is possible to limit the maximum amount of incoming SIP packets which are stored to be handled and processed later on. This guarantees a responsive system even in an overload condition. It handles and parses still as much requests as possible but the excess is simply discarded.

When more SIP requests are arriving than SmartWare can handle, the overall system performance decreases. This is because internal resources are occupied for requests which cannot be handled in time. This causes re-transmissions of these requests and adds additional overhead to the system. In order to avoid such a condition where no successful processing of requests is possible anymore, it is better to drop packets early in the processing queue.

Best overall performance in processing the highest number of successful call attempts with a continuously overloaded system was reached by setting this queue limit to a value of 8.

Mode: sip

	Command	Purpose
Step 1	[node](sip)#[no] max-queued-packets <number of packets>	Limits the internal SIP queue to discard any packets when the configured number of packets is reached. Suggested: 8

FXO caller-ID checksum verification

First appeared in build series: 2012-07-18

This configuration only has an influence when the caller-ID format is either 'etsi' or 'bell'. These are the two formats which provide a checksum. All of the caller-ID formats with DTMF are not affected because they have no checksum at all.

Enabled (old default behavior)

Until now SmartWare accepted a caller-ID only if it had a valid checksum. A caller-ID without checksum or with an invalid checksum was discarded. The user can establish the old behavior with enabling the caller-ID verification.

Disabled (new default behavior)

The default behavior is changed now that the caller-ID verification is disabled. Here the calling e164 is filled with the received caller-ID data no matter if a checksum is valid or present at all.

Screening-indicator (for advanced use)

Besides the basic setting (enabled/disabled) a third option 'screening-indicator' exists for advanced use. It fills in the received caller-ID to the calling e164 no matter if a checksum is present or valid. But besides that it sets the calling screening-indicator according to the checksum. This allows the user doing manipulation of the call (for example set the caller name) with mapping tables (calling-si) in the call router depending on the validity of the checksum.

- **user-not-screened:** This is the default value of the screening-indicator and is present when no caller-ID was received or the caller-ID verification is configured to 'enabled' or 'disabled'.
- **user-passed:** This indicates that a caller-ID with a valid checksum has been received.
- **user-failed:** This indicates that a caller-ID with no or invalid checksum has been received.

Please be aware that this use of the screening indicator is slightly different from its original meaning in ISDN. If such calls are routed to ISDN side-effects could arise depending on the value of the screening indicator.

Summary of configuration

Configuration of caller-ID verification			
	disabled (default)	enabled	screening-indicator
caller-ID present and checksum valid	insert caller-ID in calling e164	insert caller-ID in calling e164	insert caller-ID in calling e164 and set calling screening-indicator to 'user-passed'
caller-ID present and checksum invalid or not present	insert caller-ID in calling e164	-	insert caller-ID in calling e164 and set calling screening-indicator to 'user-failed'
caller-ID not present	-	-	-

For configuration select the desired caller-ID format on the FXS interface.

Mode: interface fxo

	Command	Purpose
Step 1	[node](if-fxo)# caller-id verification { disabled enabled screening-indicator }	Specifies if the checksum of the caller-ID needs to be verified or ignored. (default: disabled)

G.S service-mode auto-detection

First appeared in build series: 2012-07-18

With this command the SmartNode can be configured to automatically detect the G.SHDSL service-mode. It is able to detect whether it is connected to a 2-wire or a 4-wire line. The feature does not detect the interleave nor the enhanced mode. The preferred mode in case a 4-wire line is detected must be configured by the user. Therefore the original service-mode command behaves as a preferred service mode if this feature is enabled. It allows defining the exact 4-wire mode to be selected in case a 4-wire line is detected. Please note that this command is only available if G14 release or later is installed to the G.S interface.

Mode: port dsl

	Command	Purpose
Step 1	[node](prt-dsl)[0/0]#[no] autodetect-service-mode	Enable/disable the G.S service-mode auto-detection feature (default: disabled)

Setting annex type

First appeared in build series: 2012-07-18

Mode: port dsl

	Command	Purpose
Step 1	[node](prt-dsl)[0/0]#annex { a b m }	Sets the annex type for dsl port operation (default: a)

Setting up permanent virtual circuits (PVC) for PPPoE

First appeared in build series: 2012-07-18

Mode: port dsl

	Command	Purpose
Step 1	[node](prt-dsl)[0/0]#[no] pvc-ethernet <vpi> <vc>	Creates a PVC and enters configuration mode for this PVC. The "no"-variant deletes the PVC configuration.

Mode: pvc ethernet

Step 2	[node](pvc)[vpi/vci]# encapsulation { llc vc }	Sets the encapsulation to be used. Optionally select either LLC encapsulation or VC multiplexing for this PVC (default: llc)
---------------	---	--

Using PVC channel with PPPoE

First appeared in build series: 2012-07-18

Mode: pvc ppp

	Command	Purpose
Step 1	[node](pvc)[vpi/vci]# pppoe	Enters PPPoE configuration mode for this PVC.
Step 2	node(pppoe)# session <Session-Name>	Defines a PPPoE session.
Step 3 (Optional)	node(session)[name]#service <Service-Name>	Defines the tag 'Service-Name' to be supplied with Active Discovery in order to identify the desired remote peer (check whether the remote peer supports this feature)
Step 4 (Optional)	node(session)[name]#access-concentrator <AC-Name>	The Active Discovery only accepts the PPPoE session if the remote peer provides tag 'AC-Name' with its Active Discovery Offer as specified. This allows to identify the desired remote peer
Step 5	[node](pvc)[vpi/vci]# [no] bind interface <name> [router] or node](pvc)[vpi/vci]# [no] bind subscriber <name>	Binds the PPPoE session directly to the IP interface name in case no authentication is required. Binds the PPPoE session to the PPP subscriber name in case authentication is required.
Step 6 (Optional)	[node](pvc)[vpi/vci]# [no] use profile ppp <Profile-Name>	Assigns a PPP profile other than the default. (default: default)
Step 7	[node](pvc)[vpi/vci]# [no] shutdown	Enables or disables PPPoA session. (default: disabled)

Setting up permanent virtual circuits (PVC) for IPoA

First appeared in build series: 2012-07-18

Mode: port dsl

	Command	Purpose
Step 1	[node](prt-dsl)[0/0]#[no] pvc-ip <vpi> <vci>	Creates a PVC and enters configuration mode for this PVC. The "no"-variant deletes the PVC configuration.

Mode: pvc ip

Step 2	[node](pvc)[vpi/vci]# encapsulation { llc vc }	Sets the encapsulation to be used. Optionally select either LLC encapsulation or VC multiplexing for this PVC. (default: llc)
---------------	---	---

Using PVC channel with IPoA

First appeared in build series: 2012-07-18

Mode: pvc ip

	Command	Purpose
Step 1	<code>[node](pvc)[vpi/vci]# [no] bind interface <name> [router]</code>	Binds the IPoA PVC directly to the IP interface.

Setting up permanent virtual circuits (PVC) for PPPoA

First appeared in build series: 2012-07-18

Mode: port dsl

	Command	Purpose
Step 1	<code>[node](prt-dsl)[0/0]#[no] pvc-ppp <vpi> <vci></code>	Creates a PVC and enters configuration mode for this PVC. The "no"-variant deletes the PVC configuration.

Mode: pvc ppp

Step 2	<code>[node](pvc)[vpi/vci]# encapsulation { llc vc }</code>	Sets the encapsulation to be used. Optionally select either LLC encapsulation or VC multiplexing for this PVC. Default: llc
--------	---	---

Using PVC channel with PPPoA

First appeared in build series: 2012-07-18

Mode: pvc ppp

	Command	Purpose
Step 1	<code>[node](pvc)[vpi/vci]# [no] bind interface <name> [router]</code> or <code>[node](pvc)[vpi/vci]# [no] bind subscriber <name></code>	Binds the PPPoA PVC directly to the IP interface name in case no authentication is required. Binds the PPPoA PVC to the PPP subscriber name in case authentication is required.
Step 2 (Optional)	<code>[node](pvc)[vpi/vci]# [no] use profile ppp <name></code>	Assigns a PPP profile other than the default. (default: default)
Step 3	<code>[node](pvc)[vpi/vci]# [no] shutdown</code>	Enables or disables PPPoA session. (default: disabled)

Set layer 2 COS for PPP and PPPoE packets

First appeared in build series: 2012-07-18

Layer 2 COS can be configured for PPP and PPPoE control frames. This configuration is only applied when PPP/PPPoE packets are encapsulated in IEEE 802.1Q tagged frames. This new feature allows traffic prioritization of PPP/PPPoE packets and adds a way to provide best effort QoS or CoS at layer 2.

Select the PPPoE session to configure this feature

Mode: session <name>

	Command	Purpose
Step 1	[node](session)# ctrl-frame-layer2-cos [0 1 .. 7]	Set the layer2 COS for PPP/PPPoE control frames (default: 7) Note: use <i>ctrl-frame-layer2-cos</i> without parameter to revert to the default.

Administrator exec mode login

First appeared in build series: 2012-07-18

Administrator users do have the privilege to enter the “administrator exec” mode by issuing the command “enable” right after login. With the following configuration command it is possible to allow all administrator user on a SmartNode to skip that step. By enabling the configuration command below, an administrator will directly be in the “administrator exec” mode after he logged in.

Mode: configure

	Command	Purpose
Step 1	[node](cfg)#[no] cli login administrator-exec-mode	Enable direct entering of “administrator exec” mode after login (default: disabled)

Set G.S power backoff

First appeared in build series: 2012-07-18

The power backoff on the G.S card can be reduced. By default this power backoff is set to 0dB but it might be needed to reduce it with long distance line.

To configure select the correct dsl port.

Mode: port dsl <slot> <port>

	Command	Purpose
Step 1	<code>[node](prt-dsl)# [no] power-backoff { 0dB -1dB -2dB .. -12dB }</code>	Reduce the power backoff on the G.S interface (default: 0dB) Note: use <i>no power-backoff</i> to set default value (0dB)

Documentation

CD-ROM

The CD-ROM that is delivered with SmartNodes includes user documentation and tools for SmartWare R6.T:

- Software Configuration Guide SmartWare Release R6.3
- SmartNode Hardware Installation Guide
- TFTP Server
- Telnet
- Acrobat Reader

WWW

Please refer to the following online resources:

- Software Configuration Guide SmartWare Release R6.3:
<http://www.patton.com/manuals/SCG-r63.pdf>
- SmartWare Configuration Library:
<http://www.patton.com/voip/confignotes.asp>

How to Upgrade

1. You have the choice to upgrade to R6.T with or without the GUI functionality.

To upgrade to R6.T without the GUI functionality, enter the following command (telnet, console):

```
copy tftp://<tftp_server_address>/<server path>/b flash:
```

To upgrade to R6.T with the GUI functionality, enter the following command (telnet, console):

```
copy tftp://<tftp_server_address>/<server path>/bw flash:
```

2. Load Patton-specific settings (preferences), if available:

Extract the files 'b_Patton_prefs' and 'Patton_prefs' into the same directory on the TFTP-server.

```
copy tftp://<tftp_server_address>/<server path>/ b_Patton_prefs flash:
```

3. Reboot the SmartNode afterwards:

```
reload
```

Notes about Upgrading from Earlier Releases

Note that SmartWare Release R6.T **introduces some changes in the configuration** compared to Release R5.x, especially in the domain of FXO and ISDN.

Please refer to the SmartWare Migration Notes R5 to R6 available at upgrades.patton.com.

How to submit Trouble Reports

Patton makes every effort to ensure that the products achieve a supreme level of quality. However due to the wealth of functionality and complexity of the products there remains a certain number of problems, either pertaining to the Patton product or the interoperability with other vendor's products. The following set of guidelines will help us in pinpointing the problem and accordingly find a solution to cure it.

Problem Description:
Add a description of the problem. If possible and applicable, include a diagram of the network setup (with Microsoft tools).
Product Description:
When reporting a problem, always submit the product name, release and build number. Example: SmartNode 4960 V1 R6.T Build 2013-01-15 This will help us in identifying the correct software version. In the unlikely case of a suspected hardware problem also submit the serial number of the SmartNode (s) and/or interface cards.
Running Configuration:
With the Command Line Interface command 'show running-configuration' you can display the currently active configuration of the system (in a telnet and/or console session). When added to the submitted trouble report, this will help us analyze the configuration and preclude possible configuration problems.
Logs and Protocol Monitors:
Protocol traces contain a wealth of additional information, which may be very helpful in finding or at least pinpointing the problem. Various protocol monitors with different levels of detail are an integral part of SmartWare and can be started (in a telnet and/or console session) individually ('debug' command). N.B.: In order to correlate the protocol monitors at the different levels in SmartWare (e.g. ISDN layer3 and Session-Router monitors) run the monitors concurrently.
Network Traffic Traces:
In certain cases it may be helpful to have a trace of the traffic on the IP network in order to inspect packet contents. Please use one of the following tools (supporting trace file formats which our tools can read): Ethereal (freeware; www.ethereal.com)
Your Coordinates:
For further enquiries please add your email address and phone number.